Catalogue of American Amphibians and Reptiles.

ALTIG, RONALD, AND PHILIP C. DUMAS. 1971. *Rana cascadae.*

Rana cascadae Slater
Cascades Frog

Rana cascadae Slater, 1939:145. Type locality, "Elysian Fields, Rainier National Park [Pierce County], Washington. Elevation 5700 feet." Holotype, adult female, College of Puget Sound 2383, collected by James R. Slater, 19 June 1938 (not examined by authors).

Rana aurora cascadae: Stejneger and Barbour, 1943:54. New combination.

Rana cascadii: Vincent, 1947a:19. Unjustified emendation.

• CONTENT. No subspecies are recognized.

• DIAGNOSIS. A montane frog (50–60 mm snout-vent length for males; 50–75 for females), *R. cascadae* is typically olive to olive-brown with a varying number of definite black dorsal spots that lack white margins but frequently have light centers. Interspot flecking is reduced or absent, and the eyes do not appear upturned. The venter is some shade of yellow that intensifies posteriorly, but melanophores are lacking from the center of the belly; groin mottling varies from light to intense. Adult *R. aurora* and sympatric *R. pretiosa* are larger (to 135 mm snout-vent length) and are red ventrally. *R. aurora* has considerable interspot flecking. *R. cascadae* is distinct from *R. boylii* and *R. muscosa* by the presence of distinct dorsolateral folds, smooth tympana, incompletely webbed toes, and a dark eyemask.

• DESCRIPTIONS. Light brown dorsolateral folds extend from behind the eye to near the groin, a light lip line projects from the nostril to the angle of the jaw, and a dark mask covers the side of the head from nostril to shoulder. The head appears broad on the somewhat slender body, and the head of the female is more pointed than that of the male. Yellow pigment occurs in the iris, and the inconspicuous tympanum is about half the size of the orbit. Laterally, the frog is mottled and the limbs are banded or mottled; there are three palmar and two metatarsal tubercles. The call of the male is a low series of slow croaks or chuckles.

Slater (1939), Wright and Wright (1949), Stebbins (1951, 1954, 1966), and Cochran and Goin (1970) presented descriptions of adults. Slater (1939), Wright and Wright (1949), Stebbins (1951, 1954, 1966), Altig (1970), and Haertel (1970) provided descriptive notes on the tadpole. Livezey and Wright (1947), Wright and Wright (1949) and Stebbins (1951, 1966) described and figured the egg. Dunlap (1955) described dorsal spotting and other morphological traits, and Dumas (1966) discussed both morphological and non-morphological characters. Altig and Brodie (1968) described albinistic specimens.

• ILLUSTRATIONS. See Slater (1939) and Wright and Wright (1949) for photographs of adults and Stebbins (1951, 1954, 1966) for line drawings. Dunlap (1955) provided a dorsal photo and a drawing of the groin pattern.

• DISTRIBUTION. *R. cascadae* inhabits montane meadows and lakes above about 1000 m in the Olympic Mountains of Washington and the Cascade Mountains of Washington, Oregon, and California. The record from Potsville, Idaho (Slater, 1939), is erroneous. Stebbins (1951, 1954, 1966) and Dumas (1966) presented range maps. Stejneger and Barbour (1943), Vincent (1947a, b), Funkhouser (1949), Dunlap and Storm (1951), Farner and Kezer (1953), Burns (1954), Zweifel (1955), Slater (1955, 1964, 1965), Dunlap (1960), and Badaracco (1962) presented range notations.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Dunlap (1955) and Dumas (1966) presented comprehensive character analyses; the latter concerned primarily non-morphological data. Stebbins (1951) and Wright and Wright (1949) presented detailed descriptions of all life stages with some ecology data. Porter (1961) and Haertel (1970) discussed experimental hybridization with *R. aurora* and *R. pretiosa* respectively, and Zweifel (1955) discussed hybridization with *R. aurora* and *R. boylii.* Panitz and Briggs (1968) identified a trematode parasite, and Haertel (MS, 1969) presented karyological data. Zweifel (1955) and Brodie (1968) mentioned mis-matings of *cascadae* with *R. boylii* and *Bufo boreas* respectively, and Briggs and Storm (1970) discussed population dynamics and growth rates. Zweifel (1955) discussed habitat differences between *R.*

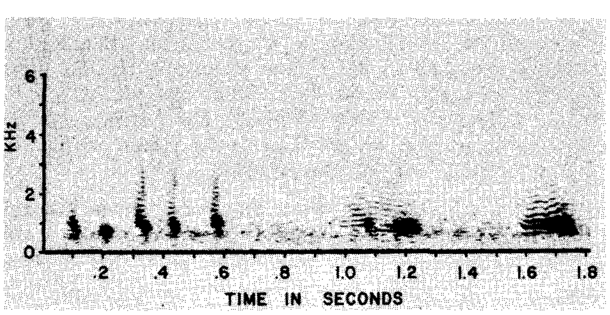
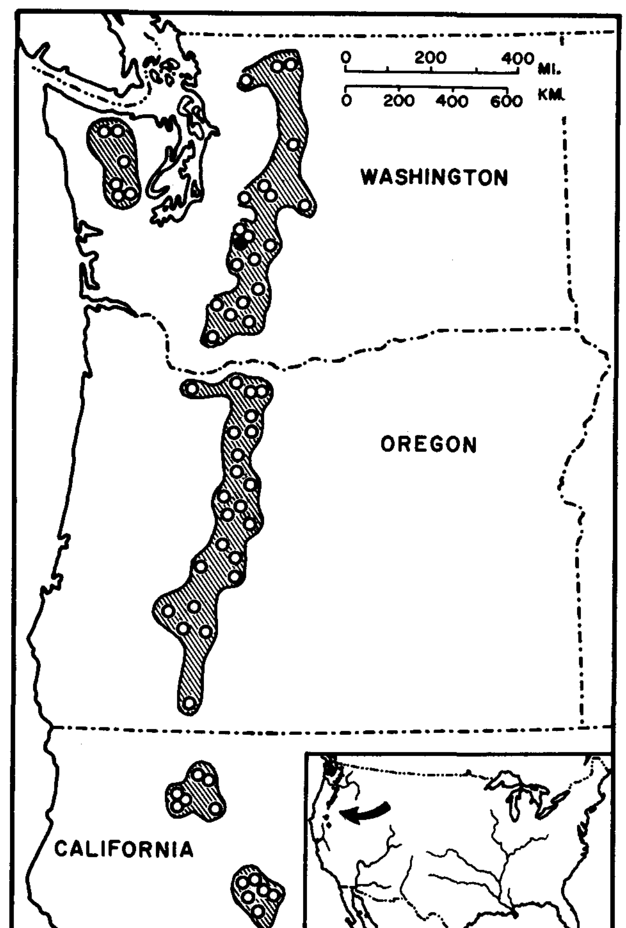


FIGURE. Audiospectrogram (narrow band, 45 Hz) of call of *Rana cascadae*: Bear Springs, Jefferson County, Oregon, April 1966 (recording courtesy of Jeffrey Briggs).



MAP. The solid symbol marks the type-locality; circles indicate other localities. The inferred range is shaded.

cascadae and *R. muscosa* and corrected the identifications by Grinnell et al. (1930) of *R. cascadae* from Tehama County, California as *R. boylii sierrae*. Chantell (1968) and Altig (MS) presented osteological data, and Brattstrom (1963, 1968) presented thermal ecology data. Martof (1970) compared *R. cascadae* with *R. sylvatica*. Wiens (1970) reported experiments on tadpole behavior.

• NOMENCLATURAL HISTORY. Slater (1939) described *R. cascadae* as a species. In the absence of a thorough study of variation, Stebbins (1951, 1954) followed Stejneger and Barbour (1943) in reducing *cascadae* to a subspecies of *R. aurora*. After character analyses of morphological and nonmorphological data by Dunlap (1955) and Dumas (1966), it seems agreed that *cascadae* is a separate species that is likely most closely related to *R. pretiosa*. Stebbins (1966) followed this arrangement.

• REMARKS. Wright and Wright (1949) incorrectly stated the catalogue number of the holotype as C.P.S. 2883 instead of C.P.S. 2383. Badaracco (1962) incorrectly labeled a drawing of *R. cascadae* as a red-legged frog. Farner and Kezer (1953) mentioned that some references to other species apparently concern *R. cascadae*, at least in part (e.g., Evermann, 1897; Storer, 1925; Gordon, 1939; Campbell, 1934; Fitch, 1936; Slevin, 1928; Vincent, 1947b).

• ETYMOLOGY. The vernacular and specific names refer to the Cascade Mountains where the holotype was collected.

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